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Child, and How to Study it. Such a book could not have been written ten years ago; there was no material of which to make it. And even if written, it would not have been read; there was no interest in the subject.

This book *will* be read; yet one who has kept in touch even superficially with what is being discussed in the current educational magazine, especially in the *Pedagogical Seminary*, gets from it not a single new idea.

This does not mean that the book is not full of thought, and of good thought. It is a volume that ought to be in every Normal School library, and might profitably be read by the great majority of the teachers of the country. Less technical than its title seems to indicate, it deals with the general conditions of a child's life both at home and at school, as well as with the care of sight, hearing, touch, etc.

The book is emphatically 'common sense.' The author shows an acquaintance with much literature on his subject, and uses his material for the benefit of the every-day teacher in the every-day school. Many of his "tests" for sense defects are, as he frankly acknowledges, crude. Much that he says is common-place; but for that very reason, sandwiched in with less apparent truths, is valuable and forcible. For instance, he calls attention to the spread of disease by means of the common-drinking cup and the common towel; facts that every teacher ought to know and frown upon, but which still exist in all their primitive nastiness. There is no attempt at scientific accuracy, but when science is thought to point the way she is followed. The chapter on *Growth and Adolescence* is, perhaps, the most valuable of the work.

The book is clearly written and is paragraphed in sub-heads in a way to catch the eye. At the end is a rather long bibliography, largely made up of American educational magazines, followed by a good index.

Die moderne physiologische Psychologie in Deutschland. Eine historisch-kritische Untersuchung, mit besonderer Berücksichtigung des Problems der Aufmerksamkeit. By W. HEINRICH. Zürich, E. Speidel, 1899. pp. vii, 249. Mk. 4.

The second edition of this brilliant but one-sided little book has been enlarged by a section dealing with Exner's *Entwurf*, a concluding chapter, and an appendix replying to criticisms by Külpe and Hillebrand; while the section on Wundt has been considerably modified. The revision shows all the dogmatism of the previous edition; there is the same arbitrariness in the selection and omission of books and authors, and the same incapacity to envisage a psychological system as a whole. But if the author is a gadfly, he is one that cannot be all too easily brushed aside. His objections and reproofs must be met, and met by hard thinking. For this reason the work is most welcome. It may, perhaps, be hoped that in yet another edition Dr. Heinrich will extend the range of his vision and consider French and American theories of attention.

Untersuchungen ueber das Gedächtniss für räumliche Distanzen des Gesichtssinnes. ZWETAN RADOSLAWOW-HADJI-DENKOW. *Philos. Studien* XV, 3. pp. 318-452.

This article is based on experiments carried on in the Leipzig Laboratory in 1896-7. It attempts to answer two questions, viz.: (1) What is the exact influence of time on visual memory for distances? and (2) what effect upon the memory proceeds from the character of the filling introduced into the interval of retention?

(1) After citing the work of E. H. Weber, W. Lewy and J. Čelikov on visual memory the author sets forth the relation which obtains

between the quantitative accuracy of memory (Gedächtnisschärfe) and the length of the memory interval. He used as stimulus a lateral distance (usually ca. 30 mm.) limited by two black dots, one of which was attached to a framed pane of glass, and the other to a white card immediately behind the glass, and adjustable laterally by means of a micrometer screw. The method of minimal changes (without knowledge of direction) was used throughout (except one series by R. & W. cases). Values for both the upper and lower limina were obtained with 13 intervals (1" to 60"). It was found that "within certain limits the accuracy of memory [indicated by the magnitude of the limina] is approximately proportional to the logarithm of the time:" this for normals of 30 mm. and 40 mm. Small irregularities on the logarithmic curves are referred to accidental coincidences of the stimulation time with various phases of the attention wave. Large irregularities—lowering of the limen—(similar to H. K. Wolfe's: cf. *Ueber das Gedächtniss*) give expression, in the author's opinion, to a peculiarity (bestimmte Eigenschaft) of the memorial function: they indicate an intermittent strengthening of the memorial image (446). The most apparent lowering of the difference limen occurs after 30". (2) In previous experiments the direction of the attention was not controlled during the retention interval, though the eyes were closed and the observers declared that the image of the normal stimulus was seldom present: to estimate accurately the effect of the conscious filling of the interval, various forms of stimulation—metronome and bell strokes, grays, colors and reading (Zwischeneindrücke)—were introduced when the normal was removed. It was found that, under these conditions, the memory, instead of falling off, improved— Δr for the various intervals decreased.¹ This "unexpected" result the author explains as follows. Just as a perception is dimmed by a stimulus acting continuously for a long time, memory suffers if a single idea is steadily held in the attention. But if the attention is held away (by Zwischeneindrücke, e. g.) from the memorial contents, the latter remains clear and fresh. The withdrawal of the attention, he conjectures, means that the psychophysical energy is left undisturbed in the memory center (369), and hence that the memory, as a cerebral disposition is kept intact. A constant reproduction, on the other hand, exhausts the psychophysical energy, and memory is weakened. Three objections may be offered to this rather tenuous explanation. (1) The obscurity noted in perception is very likely to be due to peripheral processes which are not in evidence in the case of memory. (2) According to the introspection of the subjects, as indicated above, the idea of the normal "never or only rarely, and then very indistinctly" (449) appeared in consciousness during the interval. Indeed, the author asserts that the two incentives to reproduction are (a) the comparison-stimulus and (b) eye-movements accompanying its appearance (450). (3) It is extremely doubtful whether the Zwischeneindrücke—sounds, colors, etc.—furnished an adequate distraction: even addition has been found to produce only a partial and intermittent abstraction.² Probably these heterogeneous sensations (unless some unrecorded precaution was taken) really acted as a spur and kept the mind alert.

The fact that a j. n. d. becomes subliminal on the increase of the

¹ N. Vaschide has remarked that distraction favors memory for lines. *Dritter Intern. Cong. für Psych.*, p. 455.

² Cf. A. J. Hamlin who remarks that an intermittent distraction is no distraction, for it is the degree and not the duration of the attention that affects the judgment in S. D.: in fact, "the so-called distraction . . . by adding definiteness and interest to the task heightens the degree of attention." *Attention and Distraction*, pp. 5 ff.

retention interval (as the logarithmic curve shows) leads R-H-D to a distinction between *ideal* and *absolute* memories. In the former, a j. n.d. would remain liminal through any interval of time; in the latter, supraliminal differences beyond a certain magnitude are retained through an indefinite lapse of time. The author argues, from the memory curve, that an ideal memory is an impossibility, and also that all memory limina (*i. e.*, difference limina at the various intervals) lie below absolute memory, *i. e.*, between ideal and absolute memory, but approach the latter as the time interval increases. The contraction of an ideal memory was guarded against in the experiments by a daily shifting of the normal stimulus; but since it was found that the constant use of a single normal throughout a working period did not tend to develop it, the author concludes that the precaution was useless. This is significant, since it seems natural that the direct effect of practice (as *e. g.*, the repetition of an N in the method of average error) should be the formation of a stereotyped memory that would carry a liminal difference through an extended lapse of time;¹ that is, tend to produce an ideal memory. In fact, one of R-H-D's subjects shows plainly such a tendency. Tyszkowski (408) takes first a series beginning at the 60'' interval and running down to 1''. The liminal values (average of o.L. and u.L.) are for 60''—1.235 mm.; for 1''—.46 mm., while a second series taken in the opposite direction gives the values: for 1''—.45 mm.—; for 60''—.675 mm.

The limit of absolute memory (Grenzunterschied) was found by getting the limina at a constant short interval through which the subject observed a lateral distance (Zwischendistanz) = or \geq the normal. As this distance approached the normal it disturbed the limen by (1) obliteration of the memory image of the normal, and (2) by confusion with this image. As it receded from the normal (becoming greater or less) its disturbing influence on the latter ceased at a certain point, which represents for the author the lower limit of absolute memory; *i. e.*, the smallest difference which persists indefinitely (presupposing a constant degree of practice). It is clear that this method will be valid only where no qualitative change of the memorial residue is brought about through time; moreover, it does not seem to follow that the confusion due to an interpolated stimulus, lasting for 10'' or 20'', would be equivalent in its effect upon the limen to an ordinary interval of indefinite length. The coincidences given in the text are too rough (if we accept the logarithmic form of the memory curve) to be convincing.

Finally, the author notes that two objectively equal stimuli, when given successively, tend to elicit the judgment "greater." He decides that this overestimation of the second stimulus is due to a peripheral factor and not to a change in the memory image, as has often been held in similar cases.² The peripheral influence—variable muscular strains—is shown very ingeniously to be an indubitable cause in the overestimation. It does not, however, explain an almost constant disparity in the magnitudes of the upper and lower limina: the lower is in almost every case smaller. For this there is found no satisfactory explanation (353). The reasons brought against the lack of fidelity of the image are too involved to be discussed here. They seem to the writer to be insufficient. Our own reason would be that no memory image has been shown to exist in the experiments in question. The author states that often a feeling seems to be the only warrant for the assurance experienced with a judgment of likeness or difference. May

¹ Cf. pp. 35-6 *supra*.

² Note p. 36, *supra*.

it not be that this feeling replaces the explicit comparison between the perception and the image and itself validates the judgment?

I. M. BENTLEY.

A Primer of Psychology. BY EDWARD BRADFORD TITCHENER. The Macmillan Co., New York, 1899, pp. xvi, 316.

The first edition of this admirable introduction to Psychology has already been noticed in the JOURNAL (vol. X, p. 150). The new edition has been thoroughly revised, several sections having been rewritten in whole, or in part, and an appendix has been added giving a résumé of Flechsig's scheme of cortical centres. The scope and general treatment of course remains unchanged.

NOTES AND NEWS.

THE PARIS CONGRESS.

The programme of the fourth International Congress of Psychology to be held in Paris August 20-25, 1900, is to hand, and gives the following details of organization.

Intending members are requested to fill out a printed form (obtainable from the American members of the International Council: Professors Baldwin, Stanley Hall, James and Titchener), and to forward it with 20 fr. membership fee to the general secretary, M. le Dr. Pierre Janet, 21 rue Barbet-de-Jouy, Paris. The card of membership entitles its holder to all the publications of the Congress, and also gives right of entry to various laboratories, museums, hospitals, etc. Railroad reductions of 40 per cent. are expected during the exposition. Communications may be written in English, German, French or Italian; no communication must exceed 20 minutes in duration. Titles of communications are desired, at the latest, by Jan. 1, 1900. Sections and presidents are as follows:

- I. *Psychologie dans ses rapports avec l'anatomie et la physiologie.* Dr. M. Duval.
- II. *Psychologie introspective dans ses rapports avec la philosophie.* M. G. Séailles.
- III. *Psychologie expérimentelle et psychophysique.* M. A. Binet.
- IV. *Psychologie pathologique et psychiatrie.* Dr. Magnan.
- V. *Psychologie de l'hypnotisme, de la suggestion et questions connexes.* Dr. Bernheim.
- VI. *Psychologie sociale et criminelle.* M. Tarde.
- VII. *Psychologie animale et comparée, anthropologie, ethnologie.* M. Y. Delage.

A local committee of reception, including thirty well-known names, has been formed: we regret to record the fact that Professor Balbiani has died since the list was prepared. The officers of the Congress are: President, Professor Th. Ribot; Vice-President, Professor Ch. Richet; General Secretary, Dr. Pierre Janet; and Treasurer, M. Felix Alcan.

Information concerning related Congresses may be obtained as follows: Philosophy, M. Xavier Léon, 39 rue des Mathurin; Social Sciences, M. Dick May, 22 rue Victor Massé; History of Religions, MM. J. Réville and L. Marillier, Sorbonne, Paris.